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EMERGENCY FIRE PROTECTION CONNECTIONS TO MUNICIPAL WATER SYSTEM AT HARTFORD, CONN.[1]

Due to evidence of pollution in the Hartford water supply, the cause of which was located in a small auxiliary connection used for industrial purposes between the city system and a driven-well supply, an order was issued by the Board of Water Commissioners to separate physically all connections between the city mains and other sources of water supply. This order included the auxiliary fire connections. Several of the manufacturing establishments having fire connections controlled by the double check valve system protested against this order. During the discussion, the fact was clearly shown by records that there was leakage through the checks on many test inspections; frequently through one and on several occasions through both valves at the same time. At this meeting an expert representing the manufacturing and insurance interests stated that while there was some danger in any connection of a public supply and a polluted source and that, as a general rule, health officers and practical water works operators were opposed to such connections, nevertheless he believed that such connections could be made of little danger if controlled by a properly designed check valve system. He stated that the present design was not satisfactory, the chief difficulty being that there was danger of corrosion or binding of the hinge and of pipe moss becoming wedged under the valve seats. He suggested that these difficulties could be largely done away with by the construction of a bronze valve differing somewhat in detailed construction from that at present in use. The expert would not admit that even such a valve would be absolutely without danger but believed that the danger of pollution would be so reduced that it would be of less importance than the dangers to life and property resulting from insufficient fire protection. A request was made by the manufacturers that the order of the Board be suspended pending an endeavor on their part to design a more efficient check valve and this request was granted by the Board. Such a design has been submitted.

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[1] Memorandum furnished by the Editor.

It is practically a duplicate of the present Factory Mutual check valve. It is, however, made entirely of bronze instead of having a cast-iron body with bronze clapper and seat. It has certain other modifications, all of which are in the interest of improvement in mechanical efficiency. Among the advantages claimed are:

1. The gasket is moulded from the choicest and toughest of rubber, such as is used for the treads of the best tires and in a mold possessing mechanical accuracy so as to insure perfect seating with a minimum of pressure, such as the weight of the clapper.

2. The hinged carrier which controls the clapper as to position when seating is made so as to permit of a wabble of one part with the other within certain limitations, and at the clearance points, the parts are properly shaped for machining so as to guarantee the necessary clearance at all times, whether the pressure be light or heavy, thus permitting the gasket to seat with uniform pressure throughout. The gasket is held by a single plate locked at its center, which serves to dovetail the rubber at its holding point.

3. The hinge is also arranged so as to favor the action, and the body of the valve so shaped as to permit lifting the clapper upward and out of the body of the valve for inspection, rendering the renewal of the gasket an easy matter if necessary, although it is claimed to be doubtful if they will show serious wear or deterioration for a period of twenty years, as the freedom from frost, heat or light and the presence of water are all favorable for long life to good rubber.

4. Below the clapper there are greatly increased clearances for the washing away and out of the valve of foreign materials such as gravel.

The approval of this valve will involve the acceptance of the following conditions by the Board:

1. A connection exists between a badly polluted stream and the public water supply.

2. This connection is controlled by a mechanical device.

3. Valves of substantially the same pattern but of probably less efficient mechanical construction have shown leakage in the past.

4. Little or no difference in insurance rates is made for factories protected by the double check valve system or for those protected by suitable tanks or cisterns.

5. The previous valves now condemned were, when installed, probably alleged and expected to give perfect protection.

6. If approved, the burden of responsibility in case of typhoid outbreak must rest upon the Commission, which is now building new works at very heavy expense to give an unquestionably pure supply to the city.